Allgas CAPEX and OPEX Review

October 2010

APA Group

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Abbreviations and terms

ABBREVIATION OR TERM	DEFINITION
AA	Access Arrangement
AER	Australian Energy Regulator
AMP	Asset Management Plan
APT	Australian Pipeline Trust
CCE	Conforming Capital Expenditure, as defined by Rule 79(1) of the NGRs
CDA	Collaborative Delivery Agreement
FY	Financial year.
IMS	Incident Management Strategy.
NGR	National Gas Rules
PB	Parsons Brinckerhoff.
QCA	Queensland Competition Authority
SAOP	Safety and operating plan.
SCADA	System Control And Data Acquisition.
CCT	Conforming Capital Test
CPI	Consumer Price Index
GCC	Gold Coast City Council
RAB	Regulatory Asset Base
HIA	Housing Institute of Australia

1. Introduction and purpose

Parsons Brinckerhoff (PB) has been engaged by APT Allgas Energy Pty Limited Networks to provide consulting services for the review of capital and operating expenditure of the Allgas gas networks for compliance with the relevant capital and operating expenditure provisions of the National Gas Rules (NGR).

This review covers both the current Access Arrangement (AA) period 2006 to 2011 and the future AA period 2011 to 2016.

The review will assist Allgas to prepare its AA proposal for the period 2011-2016 to the Australia Energy Regulator (AER).

1.1 Objectives and scope of work (Instructions)

The letter of engagement outlining the objectives and scope of this expert consultancy are provided in Appendix B. The objectives of this engagement are to assess, using the defined security of supply and service standards, the Allgas gas network for:

- The efficiency and prudency of capital expenditure for the current AA period with reference to NGR rule 79.
- The efficiency of Allgas capital planning practices and the reasonableness of estimates of capital expenditure for the future AA period with reference to NGR rule 79.
- The prudency and efficiency of Allgas current AA operating expenditure and the reasonableness of estimates of operating expenditure for the future AA period with reference to NGR rule 91.
- Estimates are reasonable and comply with NGR rule 74.
- Benchmarking the Allgas gas distribution business against readily available key performance indices from other gas and electricity distribution businesses.

'Prudent', in its ordinary sense, means "careful of one's own interests; provident, or careful in providing for the future"[1].

For the purposes of this review and assessment, the prudency test is intended to determine whether the expenditure was reasonable[2] given the information available at the time of the expenditure. That is, the review has been conducted on the basis that the investment decision was prudent at the time it was made – not with hindsight. PB has assessed prudency against identified drivers and whether service standards have been maintained. PB has also assessed the drivers of additional expenditure.

The assessment of prudency is based on the final outcomes, with consideration given to the quality of, and commitment to, the planning and evaluation procedures. The procedures have been benchmarked against industry practice for the planning, provision and utilisation of assets and service standards.

[1] *Macquarie Dictionary Online*
[2] *By reference to the provisions of NGR rule 79.*

'Efficient', in the ordinary sense of the word is "functioning or producing effectively and with the least waste of effort". For the purposes of this review and assessment, a test of efficiency requires an assessment of capital expenditure from a 'lowest sustainable cost' perspective over the life-cycle of the assets as required by NGR rule 79(1)(a).

Efficiency has been assessed on the basis that the projected expenditures will deliver the identified outcomes and service standards, and takes into consideration network and non-network options. Over time, efficient investments should minimise costs for the expected outputs and ensure that resources are allocated appropriately.

In achieving the above-listed objectives, PB would thus be able to form an opinion whether the Allgas historical and forecast capital expenditure satisfy NGR 79 and the Conforming Capital Test (CCT) as defined by that rule.

Review of the following is excluded from the scope of works of this engagement:

- Growth forecasts
- Non-network capital expenditure.

1.2 Facts, matters and assumptions

The following are the facts, matters and assumptions (and their sources) upon which PB's opinion is based.

- The projects reviewed by PB, historical and forecast, accurately demonstrate the processes adopted in developing other similar Allgas projects.
- The information provided by Allgas to PB for the purposes of completing this review is accurate.

Where the review team have formed an opinion, we have provided the reason(s) for the formation of the opinion and any limitations, incomplete matters, and qualifications to the opinion.

Where nominal costs have been converted to real costs, the conversion factors of weighted average CPI of eight capital cities as presented in Table 1-1 have been used.

Table 1-1 Nominal to real conversion factors

	2006/07	2007/08	2008/09	2009/10	2010/11
CPI (%)	2.1	4.5	1.5	3.1	2.8
Conversion Factor to convert $NOM. to $10/11	1.115	1.093	1.046	1.031	1.000
Conversion Factor to convert $NOM. to $09/10	1.082	1.060	1.015	1.000	0.973

1.3 Approach and methodology

The methodology used to review the Allgas gas networks for the prudency and efficiency of the capital and operating expenditures for the current and future AA periods has been broken down to three tasks summarized below:

1.3.1 Task 1

Collection of all relevant data with respect to Asset Management and Network Load Growth from Allgas to form an opinion on the reasonableness of the current and future capital and operating expenditures.

1.3.2 Task 2

Review of data provided and identification of any gaps including missing data or clarifications of data ambiguity required to form an opinion on the capital and operating expenditures. The gaps and ambiguities in the network data will be resolved by interviewing Allgas network management staff.

1.3.3 Task 3

Review of all the supporting documents provided by Allgas outlining the methodology for estimating the current and future capital and operating expenditures with reference to the guidelines set forth in NGR rules 79 and 91 for a prudent operator operating efficiently.

Examination of the justifications provided by Allgas for the discrepancies in the current capital and operating expenditures with respect to the Queensland Competition Authority (QCA) approved values to form an opinion whether they were valid and would be as incurred by a prudent operator acting efficiently. Assess the reasonableness of expenditure estimated for future AA based on current AA spending.

Provide an opinion on whether the capital and operating expenditures incurred and estimated comply with NGR 79 and 91.

Further to this, make an assessment of capital expenditure for selected projects across each area of spend (customer requested, network augmentation and network renewal). The assessment focused on the appropriateness of processes and systems and the meeting of established performance indicators. Performance was benchmarked against readily available data on other utilities.

1.4 Sources of information and references

A list of reference material is provided in Appendix A - Sources of Information and References.

2. Business overview

2.1 Ownership

2.1.1 Current Ownership and time line history of Company's Ownership

Allgas Energy Pty Ltd is the holder of Area Distribution Authority issued by Queensland Department of Mines and Energy for all APA's natural gas assets in Queensland and has the reticulations authorisation for Northern New South Wales.

2.1.2 Management of Company's Assets

APA Group through the APT Operation and Maintenance services (APT O&M S) group known as Queensland Network group operate and maintain the natural gas assets of Allgas[3].

2.2 Network description and asset listing

- The Allgas distribution network serves around 82,000 customers (for 2008/2009 financial year) including residential, industrial and commercial users[4]. Allgas Energy Pty Ltd system is divided into three principal gas supply network regions; the Brisbane Region, Western Region (Oakey and Toowoomba) and South Coast Region (includes northern NSW).

  Discreet systems in the network are supplied directly off the Roma to Brisbane transmission pipeline through gate stations located at Oakey, Toowoomba, Dinmore, Ellengrove, Willawong, Runcorn, Wishart, Tingalpa and Doboy. The network is typically characterised by a transmission or high pressure steel backbone supplying high, medium and low pressure sections of the network through regulator stations.

Table 2.1 Network Main Lengths

Network	Main Length (km)
Brisbane	1,717
South Coast	628
Northern NSW	33
Toowoomba	528
Oakey	36
Total	**2,942**

*APT Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010

[3] *APT Allgas Private Energy PTY LTD Networks Technical Asset Management Plan, July 2010 section 4*
[4] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 3.5*

Allgas gas distribution assets supply natural gas to about 82,000 customers and are made up of the assets listed in Table 2.1.

Table 2.2 Allgas gas distribution assets

Asset Class	Amount
High Pressure Steel mains (km)>1050kpa	467
High Pressure PE mains (km) 400kpa-1050kpa	1740
Medium Pressure mains (km)	439
Low Pressure mains (km)	295
Trunk receiving stations (including POTS) (No.)	0
Gate Stations	9
Primary regulating stations (PRS) (No.)	6
District regulator sets (SRS, MPRS, LPRS) (No.)	368
Residential gas meters (No.)*	76,983
I & C meter sets (No.)	4,841

*APT Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 4

3. Review of project planning process and expenditure governance

3.1 Introduction

The purpose of this section is to provide a high-level description of the asset management processes undertaken by Allgas and to present PB's opinion on these processes. The basis for forming an opinion was whether Allgas asset management processes support historical and planned capital expenditure projects and programs that comply with NGR Rule 79.

As part of this review, PB:

- Reviewed capital and operating expenditure strategies, policies, procedures and plans, and developed a view on whether the framework is effective at promoting capital and operating expenditure efficiency, and is based on sound governance principles that are consistent with accepted good industry practice.
- Assessed policies and procedures relating to:
  - identifying network constraints, replacement of assets; and non-network needs
  - Alternative options for lowest possible sustainable costs
- Assessed whether the governance frameworks used by Allgas are appropriate and efficient.
- Conducted interviews with key Allgas managers and specialists.

3.2 Asset Management Plan

The Allgas Asset Management Plan (AMP) 2010 has been prepared to outline the proposed long-term technical management strategy of Allgas assets. Its stated focus is to achieve the best balance between the key elements of asset management that includes levels of service, cost and risk. The plan sets out Allgas's proposed plans and asset management practices relating to the management, review and approvals of capital and operating expenditure.

The AMP includes documents supporting various sub plans which are based on the existing best industry practices for a low cost sustainable solution. A brief summary of the sub plans are provided below.

3.2.1 Regulatory Compliance and Management Plans[5]

This sub-plan detail the reports that are submitted for compliance with all the relevant regulations set forth by the regulating bodies. The reports include emergency response plans, safety management plans, area distribution plans and gas meter measurement scheme annual report.

[5] *Allgas Private Energy Pty Ltd Networks Technical Asset Management Plan version 0.5 July 2010, section 5.1*

3.2.2 Business Risk Plans[6]

This sub- plan identifies and classifies the business risks into low, moderate and high after an assessment of the operation risks in the previous audit periods. This sub-plan includes action plans for effective mitigation of such risks in future.

3.2.3 Safety and Operating Plans[7]

This sub-plan ensures that all the risks related to the operation of the gas assets are effectively addressed and mitigated to keep the risks as low as practically possible.

3.2.4 Network Load and Growth Demand Forecast Plan[8]

The sub-plan presents the details for forecasting the demands for the next AA period under the industrial, commercial and residential categories. This is one of the critical inputs in developing the capital expenditure for the next AA.

3.2.5 Capacity Management Plan[9]

This sub-plan details the project required to support the on-going load growth on the Allgas network and forms the basis for the future capital projects. The load growths from residential connections are based on the population forecast methodology adopted by independent forecasters, Housing Institute of Australia (HIA) Economic Group[10]. The load growths from the industrial and commercial connections are assumed to be in-line with the residential growth and are effectively based on the Allgas Marketing Department's knowledge and experience. Network validation on the future projected load growth is performed to assess the risk factor with relation to the security of supply.

3.2.6 Mains Replacement Strategic Plan[11]

This sub-plan outlines the policies associated with the mains replacement and the basis and justification for the mains replacement. The sub-plan also outlines the costs associated with the mains replacement.

3.2.7 Gas measurement Management Plan[12]

This sub-plan outlines the controls and procedures to comply with all relevant legislations. It also provides vital statistical inputs which are critical to meter replacement programs.

[6] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.2*
[7] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.3*
[8] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.4*
[9] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.5*
[10] *Allgas Energy Pty Ltd Load Forecast effective 01 July 2011 – 30 June 2016, section 2.2*
[11] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.6*
[12] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.7*

3.2.8 Odorant Control and Management Plan[13]

This sub-plan detail the current odorising practice to comply with all relevant regulations, operation procedures for the odorising facilities and emergency response plans with relation to odorising.

3.2.9 Asset Performance Levels of Service

This sub-plan uses computer applications to maintain an efficient level of network related services. The services include management of market transactions, analysing the network capacities, monitoring network conditions and emergency responses.

3.2.10 Lifecycle Management[14]

This sub-plan describes the strategy for managing the asset lifecycle, from creation, maintenance and renewal to disposal. It summarises the current status of assets and outlines the strategies, programs and action plans to be implemented for the asset to be managed and operated at agreed levels of service and optimised lifecycle costs. It details identified asset renewal and upgrade projects.

3.3 Capital Planning Framework[15]

Allgas capital planning framework defines the planning process for individual projects, within a two- to three-year timeframe as well as for the overall project program over a five-year cycle.

The framework for capital planning is based on the network capacity assessment by constantly monitoring the network performance for the existing and the future demand needs and assessing the risk factors associated with the threat to gas supply to the end users. The risk factors can be related to supply interruptions to key gas usage facilities and inconvenience caused to the residential and other customers due to short and long periods of load shedding thereby undermining the future business growth opportunities due to the loss of reputation.

The network augmentation projects and the growth related projects are laid out to mitigate the risks involved in the event of loss of security of supply. The implementation of the project is constantly monitored through to its final completion.

3.4 Procurement Policy[16]

Allgas has provided a procurement policy document which is applied to all projects. The policy provides the mechanism for efficient pricing of the projects. It is Allgas policy that all

[13] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 5.8*
[14] *Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010, section 6.1*
[15] *Allgas APT Allgas Energy PTY LTD Networks Capital Management Strategic plan Draft Version 0.2 12 August 2010, Appendix 6*
[16] *General Procurement Policy, version 0.3, 30 May 08*

personnel engaged in the material purchase strictly adhere to the policies set forth in the procurement policies

The procurement policy states that competitive tenders are sought for all goods or services with a value of more than $100,000 or where there is a material risk to the business. The procurement policy includes:

- Procurement process matrix
- Tendering Process and Forms.

The procurement process matrix includes the steps and flowcharts that need to be followed in purchase of items, selection of vendors and payment methodology for the goods and services delivered.

The tendering process and forms outline the steps involved in the initiation of the tender, issuance of the tender, evaluation and final approval for the purchase of the goods or awarding the contract.

3.5 Opinion on project planning process and expenditure governance

It is the opinion of PB that the planning process used by Allgas for capital works is efficient and effective, and it provides a good balance between the competing requirements of risk management, operating efficiency, capital investment, revenue and regulatory compliance.

PB considers the risk assessment methodology and the various sub plans outlined in the Allgas Capacity Management Plan[17] used to determine the need and timing of each project, provide the basis for projects to be justified under Rule 79 (2) (c) i-iv.

[17] *APT Allgas Energy PTY LTD Networks Capacity Management Strategic plan Draft Version 0.2 12 August 2010*

4. Review of capital expenditure for current period

4.1 Background

PB undertook a high level review of actual capital expenditure for the current period to compare with QCA allowed costs and to establish an opinion on the efficiency and prudency of Allgas expenditure. This review was also used as a basis to assess the efficiency and prudency of future capital expenditure forecasts.

4.2 Historical overall Capital Expenditures for the current Access Arrangement

Table 4-1 QCA Allowed Capital Expenditure for Access Arrangement 2006-2011 ($m, Real 2010/11)

	2006/07	2007/08	2008/09	2009/10	2010/11FY	Total
Augmentation	1.66	2.69	3.07	5.71	0.09	**13.22**
Renewal	7.27	7.11	6.89	6.86	6.73	**34.87**
Customer initiated	14.29	15.41	16.27	17.33	19.40	**82.70**
Total	**23.22**	**25.21**	**26.23**	**29.91**	**26.22**	**130.79**

Note: Figures may not add up to sub-total and total due to rounding. Values are converted to 2010/11 real by using factors in historic opex tab in 20100901 - 2010-2015 Allgas Opex Access Determination

APA CAPEX Plan V16 240810, summary worksheet.

Table 4-2 Actual Capital Expenditures for Access Arrangement 2006-2011 ($m, Real 2010/11)

	2006/07	2007/08	2008/09	2009/10	2010/11FY	Total
Augmentation	2.33	0.40	0.38	2.54	0.81	**6.46**
Renewal	3.96	2.24	10.30	10.00	9.63	**36.13**
Customer initiated	14.23	14.78	14.16	12.61	13.55	**69.33**
Total	**20.52**	**17.42**	**24.85**	**25.15**	**23.99**	**111.93**

Note: Figures may not add up to sub-total and total due to rounding. Values are converted to 2010/11 real by using factors in historic opex tab in 20100901 - 2010-2015 Allgas Opex Access Determination

APA CAPEX Plan V16 240810, summary worksheet

Table 4-3 Comparison of Forecast and Actual Expenditure Costs for Access Arrangement 2006-2011($m, Real 2010/11)

	2006/07	2007/08	2008/09	2009/10	2010/11FY	Total
Augmentation	-0.67	2.29	2.69	3.17	-0.72	**6.77**
Renewal	3.31	4.87	-3.41	-3.14	-2.90	**-1.27**
Customer initiated	0.05	0.62	2.11	4.73	5.85	**13.36**
Total	**2.70**	**7.79**	**1.39**	**4.76**	**2.23**	**18.86**

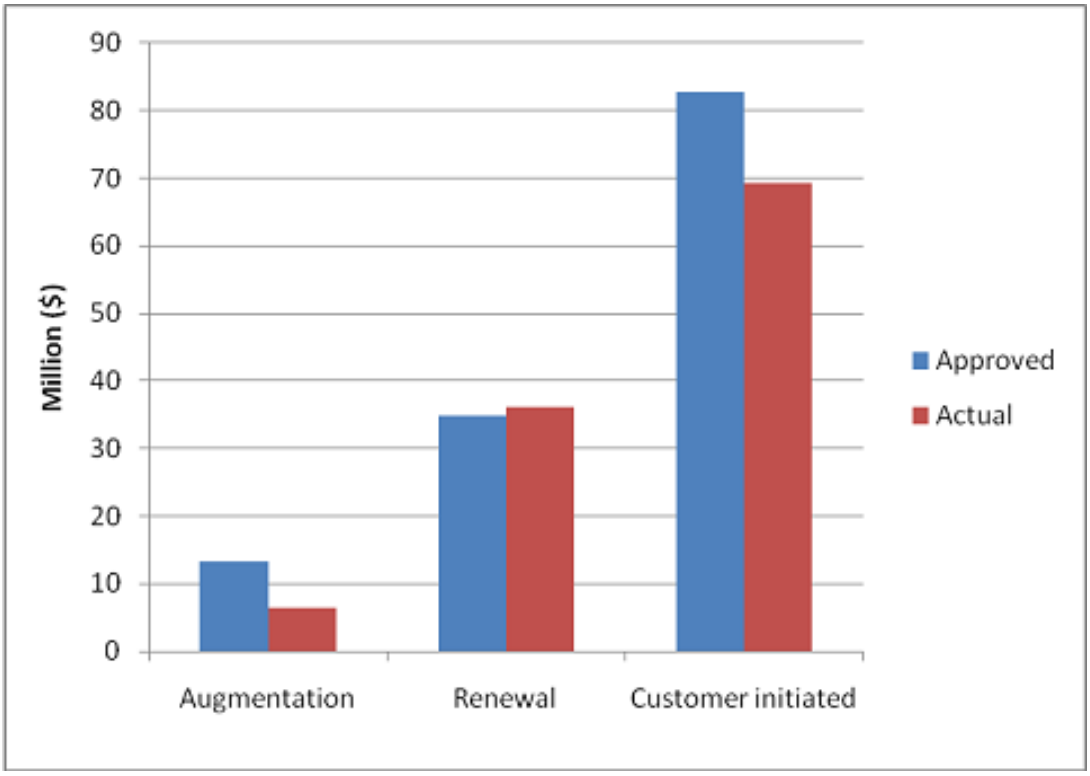

Figure 4-1 Comparison between QCA approved and actual capital expenditure for current AA period ($m, Real 2010/11)

4.2.1 Discussion on the difference between forecast and actual capital expenditure

Figure 4.1 presents higher forecast expenditure than the actual expenditures for the current AA period. Allgas has provided the business cases for projects that were undertaken or were planned for the current AA. The business cases[18] detail the project needs, various options considered, justification for the capital expenditure and the reasons for the variation between the actual and the estimated costs.

Additional projects had to be undertaken by Allgas during the current AA period even though they were not a part of the forecasted expenditures. The project budgets were under and over the estimated budgets. However the final capex spend is lower than the forecast capex. PB has summarized the reasons provided by Allgas for the decrease in the actual costs incurred during the implementation of network augmentation, renewal and growth related projects.

- Changes in the scope of projects and stricter requirements imposed by the city council

The South Coast Supply project Stage 1 was 15% higher than the estimated project budget due to the stricter requirements imposed by Logon Council for roadway reinstatements.

[18] *APT Allgas Energy Pty Limited Information Document CAPEX performance review Effective 01 July 2011 – 30 June2016 (Document file = 20100820 Past CAPEX V6*

The Visy, Jacobs Well Road project was 10% higher than the estimated cost due to changes in the pipeline alignment. This resulted in higher construction costs. This was also the case with Wynnum Augmentation project.

Significant savings were achieved by changing the pipe alignment for the low budget Dream World, Coomera project resulting in reduced rock excavation and directional boring activities.

- Delay in the implementation of the projects due to less than the anticipated demand.

The recent economic slowdown and application of water restrictions resulted in lower than the anticipated growth in gas demand [19]particularly for heating water. As a result of this some network growth and augmentation projects have been deferred to the. The most significant deferral being the South Coast Supply Project Stage 2 .

Funding priorities and more detailed assessment of tradeoffs between capital and operational expenditure resulted in the proposed mains replacement program being implemented at a slower rate than forecast[20].

- Cost Trend of Residential Customer Connection Costs

[Text confidential]

- Reinstatement and Traffic Control

Significant reinstatement and traffic control costs were saved with the assistance received from Toowoomba Central Business District (CBD) for the Toowoomba Renewal Project.

- Ownership Change

The ownership change from Energex to APA group in November 2006 resulted in a review of proposed capital expenditure. Funds were reallocated to build and develop processes necessary to improve the efficiency of the distribution network. As a result of this some projects that had moderate risk levels were deferred and more critical projects were undertaken[22].

[19]*APT Allgas Energy Pty Limited Load Forecast effective 01 July 2011 – 30 June 2016 (Document file = 20100816 Load and demand forecast section outline)*
[20]*APT Allgas Energy PTY LTD Networks Mains Replacement Program Draft Version 0.4 22 August 2010, section 3.6*

[22]*Global Argument by Allgas*

4.3 Overall comment on capital expenditure in Access Arrangement

Table 4.3 and Figure 4.1 show that the cumulative actual capital expenditure in the current AA period was less than the approved forecast expenditure

The actual costs for the current AA period are $111.93 million, representing a decrease of $18.86 million, or 14.4% below the forecast expenditure. The reasons provided by Allgas for the cost variation are presented in Section 4.2.1 of this report. Also Allgas has achieved a significant unit cost reduction in residential customer connections when compared with forecast unit cost in the current AA.

Allgas has provided details of the competitive tendering process methodology for the efficient pricing of the projects used in the current access arrangement period[23].

In PB's opinion, the justifications provided by Allgas for the variation in capital expenditures are prudent. The methodology followed in forecasting the project budget and its subsequent implementation in the current access arrangement is as would be incurred by a prudent operator acting efficiently as specified in the National Gas Rule 79 (1) (a).

4.4 Benchmarking the Current CAPEX Costs

In addition to the above assessments PB conducted comparative analysis of actual capital expenditure by Allgas against forecast/actual expenditure over the same period by other Australian gas distribution businesses. The benchmarking of the current CAPEX costs is intended to further help PB in forming an opinion on the prudency and efficiency of Allgas's capital expenditure with respect to NGR 79.

The parameters used to develop the capital expenditure as part of the comparative analysis, together with the total capital expenditures of these gas distribution businesses, is shown in Figure 4-2. Most recent available statistical information for the selected comparators, i.e. customer numbers and total length of mains have been sourced predominantly from the recently finalised Access Arrangements for ActewAGL and Jemena.

Table 4-4 Total capital expenditures of selected gas distribution business for comparative analysis in ($m, Real 2009/10)

Gas distribution business	Regulatory asset base[1] ($m, Real 2009)	Number of customers[1] (k)	Total length of mains [1] (km)	Average annual capital expenditure for Current AA period ($m, Real 2009$)
Allgas	377	82	2,932	10[2]
Jemena	3,837	1,053	24,434	153[3]
ActewAGL	278	116	4,048	12[4]

Note: The Current Access arrangement period varies for gas distribution business. Average capital annual costs in real 2009 $ were considered for KPI comparison. The average capital expenditures were calculated from the total capital expenditure for the current AA period presented in the sources referenced below.

[23] *APT Allgas Energy Pty Limited Tendering Processes*

[1] APT Allgas Energy Pty Limited Networks Operation Expenditure Effective 01 July 2011-30 June 2016, Table 1-9, Table 1-11

[2] Allgas Capex and Opex Review, October 2010, Table 4.2

[3] Final decision public, Jemena Gas Networks, Access arrangement proposal for the NSW gas networks, Table 3.3

[4]ActewAGL Distribution Access Arrangement Information for ACT, Queanbeyan and Palerang Gas Distribution Networks June 2009 Table 6.2

In order to draw useful comparisons of capital expenditure between businesses that differ in size and value, PB made an assessment of capex investment over the 5 years of the latest Access Arrangements as a proportion of opening RAB

The comparisons are presented in Figure 4-2.

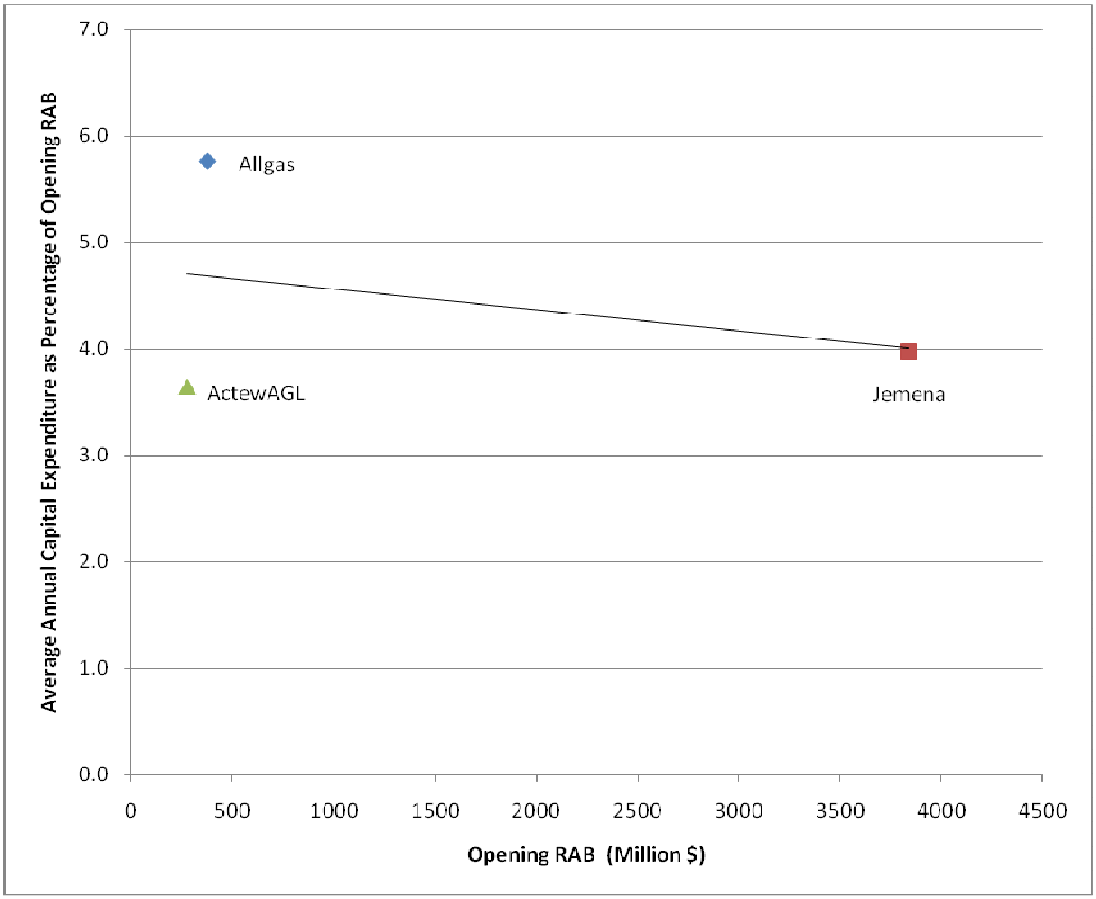

Figure 4-2 Average annual capital expenditure as a percentage of opening RAB value

4.5 Opinion from Benchmarking CAPEX expenditures

Comparative capital cost expenditures are presented in Figure 4-2. Allgas's capital expenditure is relatively higher than the other gas distribution businesses. The justifications provided by Allgas for the higher capex costs are summarized below

- Allgas advised that the capital costs are influenced by the Geographical area of operation. In QLD customer penetration for natural gas is about 50%. There are less domestic heating requirements in QLD due to warmer climate in comparison with NSW and Victoria. This results in less number of customers per km of line and higher capex per customer.

- A significant length of Allgas distribution mains is a single line that runs in the centre of roadway. The capital works implemented on such networks is bound to be higher due to the associated traffic management and roadway restoration costs. Allgas advises that this is not the case with other gas distribution businesses and hence they incur lower capex costs.

- Allgas network is relatively older compared to ActewAGL and Jemena with approximately 400km of mains being cast iron and unprotected steel. These mains are at the end of their technical lives. This has resulted in additional capital expenditure burden to Allgas to maintain and upgrade the ageing network.

PB considers the justification provided by Allgas as valid. In PB's opinion the capital expenditure during the current AA period have been managed in a prudent manner and projects have been delivered in an efficient and cost efficient process PB considers that historical capex of current AA meets the requirements of NGR 79.

5. Review of forecast Capital Expenditure for the next AA period

5.1 Forecast Capital expenditures for AA 2011-2016

PB undertook a high level review of the forecast capital expenditure to establish an opinion as to whether the forecast expenditure could be regarded as conforming to NGR Rule 79.

Allgas forecast capital expenditure for the next Access Arrangement period, 2010/11 to 2014/15, is as shown in Table 5-1. The costs include direct escalated costs.

Table 5-1 Forecast Capital Expenditure for AA 2011-2016 in Real 2010/11 $m

Real 2010/11 $m	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Augmentation	1.57	1.48	2.96	2.29	2.45	**10.75**
Renewal	5.64	5.60	5.93	6.63	6.29	**30.09**
Customer initiated	14.72	15.46	15.87	16.60	17.30	**79.95**
Total	**21.93**	**22.54**	**24.76**	**25.52**	**26.04**	**120.79**

Note: Figures may not add up to sub-total and total due to rounding.

APA CAPEX Plan V16 240810, Total worksheet

5.2 Comparison between Projected and Historic Expenditure

The Figure 5.1 presents the variation between the historic and the projected capital expenditure for each category. The projected costs for the next AA period are $121 million, representing a real increase of $9 million, or 8% over the actual expenditures for the current AA period.

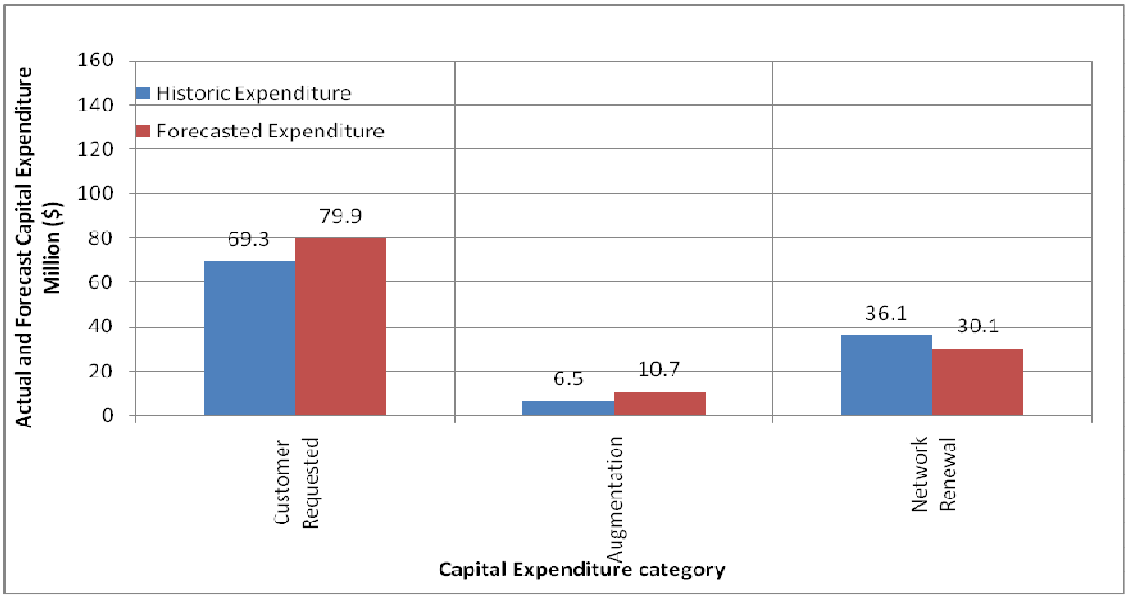

Figure 5-1 Allgas actual and forecast capital expenditure by category ($m, Rea: 2009

Allgas provided the following information to support the overall increase in forecast project capital expenditures while achieving cost efficiencies.

- The capex increase in the next AA is manly due to the forecast of a higher number of new connections. In the current AA the number of new connection was 15,763 and for the next AA Allgas has budgeted for connection of 18,037 new customers. This represents an increase of 14.5%.

- The meters change project proposed in the next AA period is a non negotiable program required to meet the regulator's requirements and to reduce the UAG in the system. The estimated cost is $6.7M24. Domestic meter replacement will be totally outsourced. The industrial meter replacement requires specialist expertise and will be done in house.

- Block mains replacement and piecemeal fixing programs to repair leaks will be carried out in the next AA. The block main and piecemeal replacement program is estimated at $26.3M25. The proposed program is intended to fix 17 km of pipeline per year. This is intended to keep the level of leakage resulting from the ageing network at an acceptable level. The program is designed to achieve best possible results without any massive increase in the customer tariffs. Emphasis is placed on the block main replacement rather than piecemeal replacement. Though the block main method involves expensive capital it has a higher rate of return compared to the piecemeal method. The unit rates tendered for block main replacement are 3 to 5 times lower than for piecemeal replacement.

5.3 Opinion on projected capital expenditure for 2011-2016

The project costs estimated by Allgas follow the guidelines established in the Allgas tendering process. It is PB's opinion that the tendering process is in accordance with the good industry practice and encourages low sustainable costs for the projects. Almost all of Allgas's projects is outsourced through competitive tendering which promotes efficient market tested pricing of the projects.

Appropriate allowance has been made for capital projects that are required to maintain the integrity of services and comply with the requirements of the regulatory authorities. These projects include mains replacement programs, meter change programs and projects deferred in the current AA period.

While the projected capital expenditure is an 8% increase on the actual expenditure during the current Access Arrangement period it is actually some 7% less than that forecast for the current period. This was achieved largely through prudent deferral of works in the current period made possible by reduced overall gas demand even though connection growth was above that forecast.

PB is of the opinion that the justification of works in proposed capital expenditure program and the reasonableness of estimates in it, meet the requirements of NGR rule 79.

[24] *Business Case APT Allgas Energy Pty LTD Meter Change Program V6 11th June 2010*
[25] *APT Allgas Energy PTY LTD Networks Mains Replacement Program Draft Version 0.4 22 August 2010*

5.4 Detailed assessment of selected projects

PB undertook a detailed assessment of selected projects proposed for the next AA period with reference to NGR Rules 74 and 79.

5.4.1 Reinforcement of existing high pressure steel network supplying natural gas to Surfers Paradise and Broadbeach

The capital budget cost for high pressure steel augmentation to Surfers Paradise and Broadbeach is $2.35 Million Dollars. Due to its early delivery in the next AA period, and the size of capital expenditure, PB sought to review its business case.

Allgas provided the business case for this project identifying the project need, risk assessment associated with it, and evaluation of alternatives and plans for effective execution.

Project need

Allgas states that the project was initiated to maintain the security of supply for future demand growth[26]. In its present state the high pressure steel network has limited spare capacity that will be further reduced with new customer connections.

As a vendor of natural gas, as per the rules set by the regulatory services, Allgas is required to maintain healthy services for its customers and should be able to meet the maximum hourly demand at any given time under normal conditions. PB considers this as a valid project required to maintain the integrity of the services and conform to the requirements set by the regulatory agencies.

Risk assessment and evaluation of alternatives

Risk assessment evaluations were carried out for potential loss of supply and further extended to all the options that were considered to mitigate this deficiency. The projects were prioritized based on a score obtained after the assessment of risks in areas of health and safety, environment, compliance and legal issues[27].

PB considers that the methodology adopted by Allgas for the risk assessment is in line with good industry practice and forms the basis for acceptable project risk evaluation.

Project budgeting and implementation

PB considers that the methodology outlined in the procurement policy encourages efficient pricing of the project from competitive tendering, and that the projects are awarded to the contractor that provides the best sustainable cost and the requisite quality of service as specified in the National Gas Rules 79. To prepare the cost estimate for this project, Allgas has used tendered prices for current works adjusted for cost escalation and expected outcomes from the tendering process for future works. PB is of the opinion that this meets the requirements of National Gas Rule 74.

[26] *Business Case: Reinforcement of HP Steel Network Supplying Natural Gas to Surfers Paradise and Broadbeach, pg 2*
[27] *Business Case: Reinforcement of HP Steel Network Supplying Natural Gas to Surfers Paradise and Broadbeach, attachment 2*

5.4.2 Meter change program

Allgas provided the business case for the recommended meter change program project which identifies the project need, risk assessment associated with it, evaluation of alternatives and plans for effective execution.

Allgas justified the need for the program in order to comply with the regulatory requirements. The business case presents the risk assessment associated with the failure of identification of faulty meters and their replacement and the methodology adopted for meter exchange and testing program[28] . The business case also presents the evaluation of various alternatives and the breakdown for the estimation of unit costs.

Allgas capital management plan and the tendering process encourage lowest achievable sustainable costs for the business cases. PB considers this business case in compliance with NGR 79 (1) and in accordance with the good industry practice. To prepare the cost estimate for this program, Allgas has used tendered prices for current works adjusted for cost escalation and expected outcomes from the tendering process for future works. PB is of the opinion that this meets the requirements of National Gas Rule 74.

5.4.3 South coast supply project stage 2

The South Coast Supply Project with an indicative budget cost of $7.14 Million Dollars is a high budget capital project and hence was chosen for detailed assessment.

Allgas provided the business case for this project identifying the project need, risk assessment associated with it, evaluation of alternatives and plans for effective execution.

Project need

Allgas states that the project was initiated to provide network capacity for the future growth demands in the South Coast Region[29]. At its present state Allgas has identified that the existing DN150 steel pipeline will not have sufficient capacity to meet the demand forecasted for 2016 and proposes to upgrade a section of pipeline with a 36 km long 200DN steel pipe.

As a vendor of natural gas, as per the rules set by the regulatory services, Allgas is required to maintain healthy services for its customers and should be able to meet the max hourly demand at any given time under normal condition. PB considers this as a valid project that has been initiated as per the guidelines set in the Allgas Strategic Capital Planning Process[30] and is required to maintain the integrity of the services and conform to the requirements set forth by the regulatory agencies.

Risk assessment and evaluation of alternatives

Risk assessment was carried out for potential network capacity problems and further extended to all the options that were considered to mitigate this deficiency. The options were prioritized based on a score obtained after the risk assessment in areas of health and safety, environment, compliance and legal issues[31].

[28] *Business Case APT Allgas Energy Pty LTD Meter Change Program V6 11th June 2010, page 2*
[29] *Business Case South Coast Supply Stage 2 V2 040810, page 1*
[30] *APT Allgas Energy PTY LTD Networks Capacity Management Strategic plan Draft Version 0.2 12 August 2010*
[31] *Business Case: Business Case South Coast Supply Stage 2 V2 040810, attachment 2*

Unit costs were estimated for alternative solutions for the augmented length of the pipe and construction of additional ancillary structures and the most viable option was chosen for implementation.

PB considers the methodology adopted for risk assessment and evaluation of alternatives is in line with the compliance requirements of National Gas Rule 79 (1).

Project budgeting and implementation

PB considers the proposed project budget in compliance with NGR 79 (1) and in accordance with the good industry practice. In PB's opinion project budgeting estimated by the following the mechanisms established in the Allgas procurement policy encourages lowest sustainable costs achievable. To prepare the cost estimate for this project, Allgas has used tendered prices for current works adjusted for cost escalation and expected outcomes from the tendering process for future works. PB is of the opinion that this meets the requirements of National Gas Rule 74

5.5 Opinion on selected capital projects

Based on the review of significant projects selected, PB is of the opinion that the justification of works in proposed capital expenditure program and the reasonableness of estimates in it, meet the requirements of NGR rule 79 and Rule 74.

6. Review of operational expenditures for the current period

6.1 Background

PB undertook a high level review of actual operating expenditure for the Financial Year (FY) 2006/2007 to 2010/2011 to compare with QCA allowed costs and to establish an opinion on the efficiency of Allgas expenditure. This review was also used as a basis to assess the efficiency of future operation expenditure forecasts.

For comparison purposes the costs included here can be classified as controllable and non-controllable costs. The controllable costs include inspection, maintenance, customer service, maintenance planning and support, network development and ancillary costs. The non-controllable costs include UAG and contestability costs. The controllable and the non-controllable costs can be combined together to regulated costs.

6.2 Overall historical operational expenditures for current access arrangement

Table 6-1 QCA allowed operation expenditure for AA 2006-2011 ($m, Real 2010/11)

	2006/07	2007/08	2008/09	2009/10	2010/11	Total
Inspection	1.44	1.89	1.81	1.89	1.72	8.74
Planned Maintenance	3.39	3.31	3.14	2.75	2.82	15.41
Corrective Maintenance	2.81	2.69	2.45	2.09	1.87	11.91
Customer Service	1.10	1.08	1.13	1.21	1.25	5.77
Maintenance planning and support	2.77	2.48	2.46	2.40	2.32	12.42
Network development	0.67	0.66	0.63	0.62	0.60	3.17
Ancillary Services	0.67	0.66	0.71	0.80	0.77	3.61
UAG	1.67	1.53	1.46	1.34	1.20	7.21
Contestability Costs	1.25	2.44	1.75	1.75	1.75	8.95
Total	**15.77**	**16.73**	**15.53**	**14.85**	**14.30**	**77.19**

Note: Figures may not add up to sub-total and total due to rounding.

20100901 - 2010-2015 Allgas Opex Access Determination

Table 6-2 Actual operational expenditures for AA 2006-2011 ($m, Real 2010/11)

	2006/07	2007/08	2008/09	2009/10	2010/11	Total
Inspection	0.000	1.351	0.731	0.794	0.810	3.686
Planned Maintenance	2.911	1.995	1.582	5.002	5.670	17.160
Corrective Maintenance	2.447	2.537	3.254	3.041	3.090	14.369
Customer Service	1.127	0.055	0.007	1.123	1.140	3.452
Maintenance planning and support	5.044	3.134	2.160	1.193	0.940	12.471
Network development	0.000	2.091	1.481	0.000	0.000	3.572
Ancillary Services	1.041	0.617	1.064	0.654	0.300	3.676
Total O&M Costs	**12.570**	**11.780**	**10.279**	**11.807**	**11.95**	**58.386**
Administration	0.644	1.070	1.721	1.437	1.250	6.122
Marketing	0.000	0.698	1.669	1.349	1.050	4.766
UAG	2.094	2.143	2.366	2.245	2.440	11.288
Other	0.521	0.042	0.000	0.594	1.430	2.587
Total	**15.829**	**15.733**	**16.035**	**17.432**	**18.120**	**83.149**

Note: Figures may not add up to sub-total and total due to rounding.

20100901 - 2010-2015 Allgas Opex Access Determination

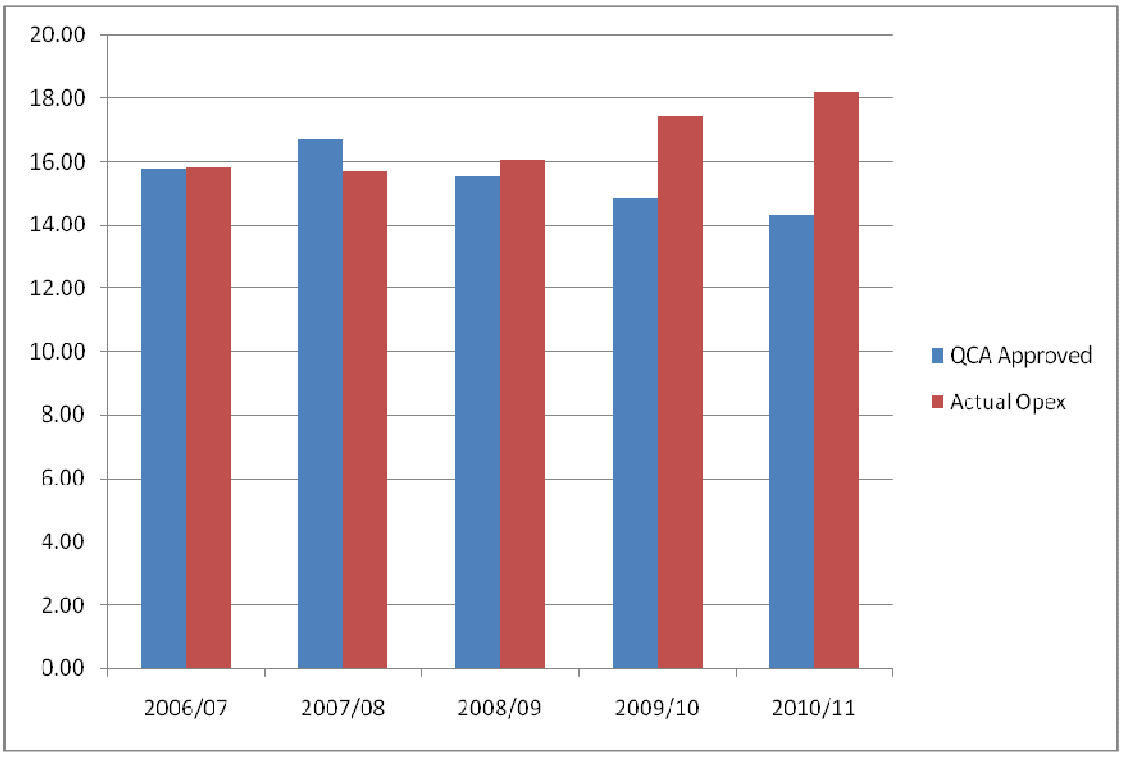

Figure 6-1 Allgas actual and QCA approved operation expenditure ($m, 2010/11)

The Figure 6-1 presents the difference between the forecast and the actual operating expenditures for the current AA. The figures presented are the final regulated costs for each FY which is inclusive of the controllable and non-controllable costs.

6.3 Forecast versus actual operating cost for the current AA

The Figure 6-1 presents the actual operation costs for the current AA in comparison with QCA approved. The actual operation costs are $83.22 million, representing a real increase of $6.03 million, or 7.8% over the forecasted expenditures for the current AA period. Detailed comparison cannot be made for individual activities due to network ownership changes from Energex to Allgas which resulted in the restructuring of the Allgas accounting system.

The increase in operation costs is almost entirely attributed to UAG and actual marketing costs exceeding the QCA approved cost.

6.4 Benchmarking the current operational costs

In addition to the above assessments PB conducted comparative analysis of actual operation expenditure by Allgas against forecast/actual expenditure over the same period by other Australian gas distribution businesses. The benchmarking of the current operational costs is intended to further help PB in forming an opinion on the prudency and efficiency of Allgas's capital expenditure with respect to NGR 91.

PB has chosen to examine the current operational level key performance indicators (KPI) with respect to the operational costs per unit length of line and costs as a percentage of asset bases.

Table 6-3 and Table 6-4 show available data for various Australian gas distributors relating to operating costs, line lengths, customer numbers and sales volumes for real 2009$.

Table 6-3 Industry Operating Costs per km Mains

Real 2009/10$	Allgas	Jemena	ActewAGL
Total Mains Length (km)	2,932	24,434	4,048
Total Operating Costs per km mains ($)	5,769	5,192	4,867

APT Allgas Energy Pty Limited Networks Operation Expenditure Effective 01 July 2011-30 June 2016, Table 1-10

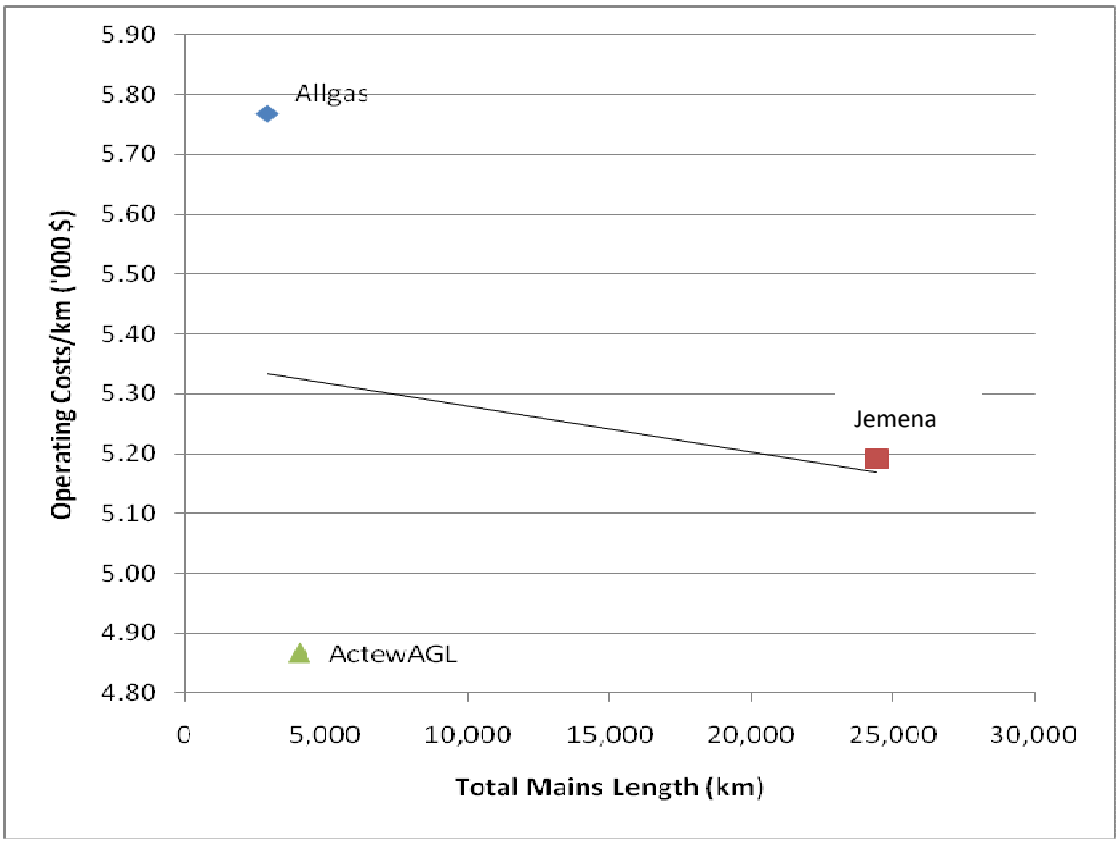

Figure 6-2 Industry comparison of operating costs per km

Table 6-4 Industry Operating Costs as % of RAB

Real 2009/10$	Allgas	Jemena	ActewAGL
RAB Value ($M)	377	3,837	303
Total Opex ($M)	16.9	126.9	19.7
Total Operating Costs as % of RAB Value	4.5	3.3	6.5

APT Allgas Energy Pty Limited Networks Operation Expenditure Effective 01 July 2011-30 June 2016, Table 1-9, Table 1-12

* Not tallying with the value in the Opex Submission.Doc, table 1-12

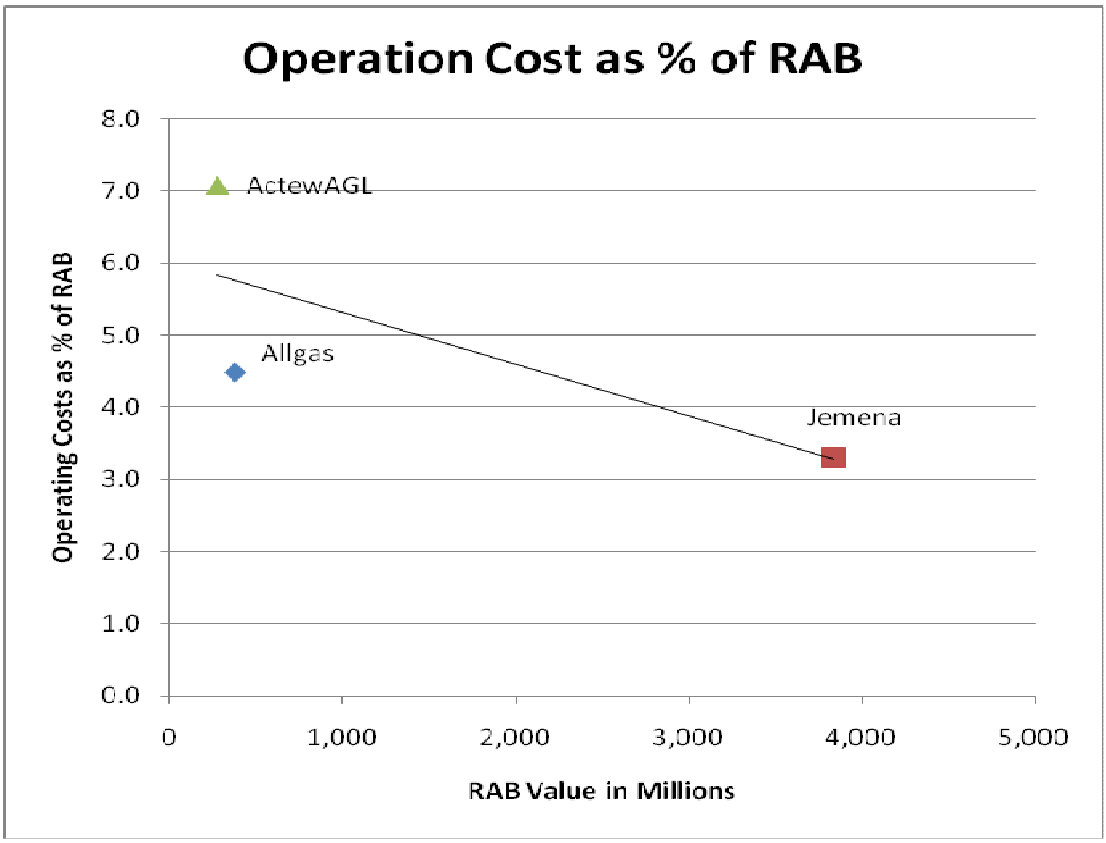

Figure 6-3 Industry comparison of operating costs as percentage of opening RAB

Allgas operating costs as a percentage of opening regulated asset value are comparable to other distributors. Jemena's cost is lower due to economies of scale. Allgas cost is lower than ActewAGL due to the depreciated RAB value of the comparatively older assets in the Allgas system.

Allgas operation cost per kilometre of main is higher than others. Allgas advised that it has additional costs over the normal operating costs incurred by the other gas distributors. The areas where the additional costs occurred and the justifications provided by Allgas are listed below.

UAG

The Table 6-5 below presents the UAG in gigajoules per km length of mains (GJ/km mains) for different gas distributors

Table 6-5 UAG comparison

	Allgas	Jemena	ActewAGL
UAG (GJ/km Mains)	142	96	33
CI & Other Mains (%)	18	2	0

APT Allgas Energy Pty Limited Networks Operation Expenditure Effective 01 July 2011-30 June 2016, Table 1-6

The UAG from Allgas is comparatively higher in relation to the other gas distributors. Allgas attributes this to age of the network and higher percentage of unprotected steel and cast iron pipes.

Network Layout

Allgas advises that the increase in the network operating costs is due to the geographical areas serviced by the Allgas network. Allgas network includes transmission lines servicing the Gold Coast region. This transmission line is 100 km long from the receiving station in Brisbane. This indicates that the extent of geographical areas serviced by Allgas is vastly spread out in comparison with other network which adds up the operational cost.

Gate Stations and Deodorant Facilities

Allgas has a comparatively small network but has nine gate stations with deodorant facilities. By comparison in the Jemena network has only one gate station with a deodorant facility for Sydney, Newcastle and Wollongong combined and ActewAGL has only two gate stations with deodorant facilities. The cost of operating and maintaining a gate station with a deodorant facility is high.

6.5 Overall opinion of current operation costs

The benchmarking of Allgas operational costs against other gas distributers presented in Section 6.4 of this report shows, after consideration of differences between networks, that Allgas operation costs are comparable with industry peers.

There has been no material increase by Allgas over the QCA allowed operation expenditure for AA 2006-2011. The increase of $6.03 million or 7.8% can be almost entirely attributed to additional UAG and marketing costs. This investment has brought considerable benefit in increased customer connections despite the economic slow down in housing justifying the expenditure as that of a prudent operator. It is the opinion of PB that the actual expenditure for the period is such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services and complies with NGR 91.

7. Review of forecast Operational Expenditures for access arrangement 2011-2016

7.1 Forecast operational expenditure for AA 2011-2016

Allgas has provided its projected operational expenditure for AA 2011-2016 as presented in Table 7-1. The forecasts provide for a productivity improvement of 1% per year.

Table 7-1 Forecast operational expenditure for AA 2011-2016 in Real 2010/11

Real 2010/11 (M)$	2011/12	2012/13	2013/14	2014/15	2015/16
Total Regulated Costs	19.52	20.04	20.49	20.95	21.18

Email correspondence from Allgas dated 22/11/2010

In order to assist with assessment of whether the Allgas forecast operation expenditure is in line with the NGR 91, PB has compared the operation expenditures for the current and the forecast AA and reviewed the justification provided by Allgas for the increased costs.

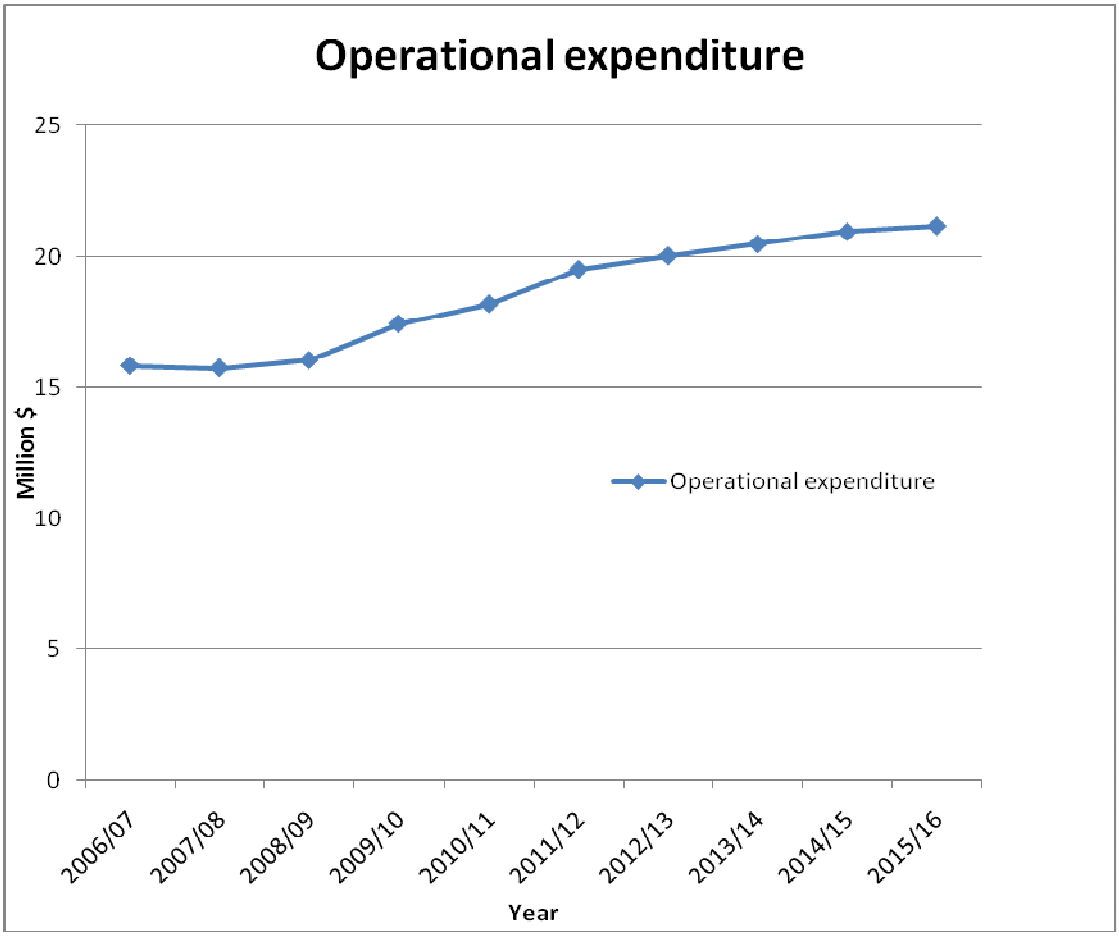

Figure 7-1 Actual operational expenditures for 2006-2010 and forecast operational expenditure for 2011-2016

PB has also compared key performance indices for forecast and actual operation costs per customer and for operation costs for km length of distribution line. Table 7.2and Table 7.3 present these performance indicators for the current AA and the next AA periods. Costs including and excluding UAG are presented to be able to consider the impact of significant increases in gas prices.

Table 7.2 Key Performance Indicators for AA 2006-2010 in Real 2010/11

	2006/07	2007/08	2008/09	2009/10	2010/11F
Total Operations Costs per km Mains ($/km)	5735	5551	5533	5945	6089
Total Operating Cost per Consumer ($/customer)	217	206	201	213	215

Email correspondence from Allgas dated 22/9/2010

Table 7.3 Key Performance Indicators for AA 2011-2016 in Real 2010/11

	2011/12	2012/13	2013/14	2014/15	2015/16
Total Operations Costs per km Mains ($/km)	6,436	6,509	6,540	6,554	6,507
Total Operating Cost per Consumer ($/customer)	223	222	220	217	212

Email correspondence from Allgas dated 22/9/2010

7.2 Discussion of Operation Cost Increases for AA 2011-2016

The forecast costs for the AA 2011-2016 are $102.18 million, representing a real increase of $18.98 million, or 22.8% over the expenditures in the current AA period. Allgas advised that the increase in the operational costs is due to the following reasons[32].

Step and Scope change projects

The step and scope changes include projects that are deemed necessary by Allgas for maintaining the integrity of the distribution network and include appointment of a Revenue Protection Officer, bridge maintenance program, condition monitoring of cased pipelines, implementation of market rule changes, electricity to gas hot water changeover program, development and deployment of new technology and extension of leakage survey program.

New customer connections

Allgas advised that the customer growth[33] is expected to increase at 3.4% pa over the next AA period. Most of the customer growth is volume class customers in newer developments. This trend will increase the operating costs in the next AA period.

[32] *Email correspondence from Allgas dated 22/11/2010, Allgas's global argument.*
[33] *APT Allgas Energy Pty Limited Load Forecast effective 01 July 2011 – 30 June 2016 (Document file = 20100816 Load and demand forecast section outline), executive summary*

7.3 Overall PB Opinion on Projected Operation Costs

From Table 7.2and Table 7.3 it can be seen that the total operating costs per kilometre of mains have increased from $5,735 in 2006/07 to a forecast $6,507 in 2015/16. This increase of $772 per kilometre, or 13.5% in real terms over this 10 year period, is equivalent to an approximate increase of approximately 1.2% p.a. Allgas advised that this increase is due to the proposed step and scope changes which are deemed to be necessary expenditure for reliable and safe operation of gas networks.

Simultaneously, total operating costs per consumer have decreased from $217 in 2006/07 to a forecast $212 in 2015/16. This is a modest decrease of $4 per consumer, or 1.8% in real terms over this 10 year period, which is equivalent to an approximate decrease of 0.2% p.a.

PB is of the opinion that the estimates of operating expenditure for the future AA are such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services and complies with NGR 91. This is further reinforced by the fact that operating costs increased progressively through the current period and are expected to peak in 2011/12 after which they are forecast to continually decrease through to 2015/16. The projected productivity improvement of 1% per year is in line with that currently achieved in Australian industry in general.

8. Declaration

PB declares that all members of the review team, have read the Federal Court Guidelines 'Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia' and have made all the inquiries that PB believes are desirable and appropriate and that no matters of significance that PB regards as relevant have, to the best of PB's knowledge, been withheld from the Court.

Appendix A

Source information and references

Sources of Information and References

1. APT Allgas Private Energy PTY LTD Networks Technical Asset Management Plan version 0.5 July 2010

2. Queensland Competition Authority (QCA) Final Approval Revised Access Arrangement for Gas Distribution Networks: Allgas Energy (Jun 2006.pdf)

3. APT Allgas Energy Pty Limited Information Document CAPEX performance review Effective 01 July 2011 – 30 June 2016

4. APT Allgas Energy Pty Limited Load Forecast effective 01 July 2011 – 30 June 2016

5. Business Case APT Allgas Energy Pty LTD Meter Change Program V6 11th June 2010.

6. Business Case South Coast Supply Stage 2 V2 040810

7. Business Case: Reinforcement of HP Steel Network Supplying Natural Gas to Surfers Paradise and Broadbeach Surfers Paradise (Document file= BC Surfers Paradise - Broadbeach Augmentation Project V6 040810)

8. APT Allgas Energy Pty Limited Networks Capital Management Strategic plan Draft Version 0.2 12 August 2010

9. APA CAPEX Plan V16 240810 Excel Spreadsheet

10. APT Allgas Energy Pty Limited Networks Mains Replacement Program Draft Version 0.4 22 August 2010

11. APT Allgas Energy Pty Limited Networks Operation Expenditure Effective 01 July 2011-30 June 2016

12. General Procurement Policy Draft, Version 1.3, 30 May 08

13. Opex Business Case: Unaccounted for Gas

14. APT Allgas Energy Pty Limited Tendering Processes

15. 20100901 - 2010-2015 Allgas Opex Access Determination